Demography India
Vol. 50, Special Issue (2021), pp. 39-64 ISSN 0970-454X

Beneficiary Satisfaction and Utilization of Health Care Services of Urban Primary Health Centres in Kerala

Sajini B Nair*[1], Shylaja L.[2] and Rajesh J Nair[3]

Abstract: Urban Primary Health Centres were established under the National Urban Mission to cater to the needs of the urban poor population. Kerala implemented this initiative in the year 2014. UPHCs were placed in accordance with the urban population proportion in each district. By 2019, Kerala established 83 UPHCs distributed over all 14 districts. Changes have been made in service provision based on the needs of the population. The study here documents the level of utilization of services of UPHCs in the State at the district level during the period 2016-18 and assesses the satisfaction on service delivery in the beneficiary perspective on five domains: Human resources, diagnostic or Lab facilities, functioning of Pharmacy, infrastructure and treatment services based on location of UPHCs in urban (town/city limits), coastal areas and slums. UPHC services are used largely by the urban poor irrespective of the location of the UPHC. There has been marked improvement in utilization levels in Kerala as the utilization increased from 581 persons per 1000 population (of assigned wards) during 2016-17 to 747 per 1000 population by 2018-19. Over 4 lakh persons in Kerala are screened for NCDs every year through the UPHCs. Beneficiary level overall satisfaction on the services of UPHCs reveals that overall 88 percent of the patients are satisfied on the services. Multivariate analysis reveals the correlates of respondent's satisfaction levels on UPHCs services to be location of UPHCs in urban (town/city limits), shorter distance of UPHC from home, those who had previously visited any health facility for treatment before seeking treatment at UPHC, those who frequently visit the UPHC for treatment.

Keywords: UPHC, Utilization, Beneficiary Satisfaction, Kerala.

Introduction

Urbanization is undoubtedly an indicator of development and one of the indicators used to measure a country's progress. New towns emerged during 2001-11 at a faster rate which placed 31.14 percent of India's population as urban. The development process has barely been sustainable consequent to this growth. Increased competition for development strained the resource availability which unfortunately triggered negative effects. Unemployment and proliferation of slums lead to adverse health outcomes in the long run. Around 65 million people live in slums in India (Registrar General of India, 2011) which was an increase from 52 million in 2001.

* Corresponding Author
[1] Social Scientist, Population Research Centre, University of Kerala, Kariavattom, Trivandrum, Kerala. Email: sajinikiran@yahoo.com
[2] Research Officer, Population Research Centre, University of Kerala, Kariavattom, Trivandrum, Kerala. Email: shylajajothi@yahoo.co.in
[3] Field Investigator, Population Research Centre, University of Kerala, Kariavattom, Trivandrum, Kerala. Email: torajeshjnair@gmail.com

Notified Slums have 49.65 lakh households, 'recognized Slums' have 37.96 lakh and 'identified Slums' have 49.88 lakh households. Maharashtra has the highest slum population (4.6 million of them in 'identified' slums) with over 11 million. Andhra Pradesh follows with over 10 million, and West Bengal and Uttar Pradesh have over 6 million slum residents each. Over 1 million of Delhi's 1.7 million slum residents live in 'identified' slums.

Studies have invariably shown that life in slums is associated with increased vulnerability to disease (Smith et al., 2003). Risk of respiratory diseases, asthma, tuberculosis and other infectious diseases have been related to high population density (Marsh et al., 2000; Harpham, 2009). Slums are characterized by deep poverty which is often a result of unrealistic and inadequate urban planning. Poverty influences people's health status as less income is related to less access to basic health-related goods and services (Alsan et al., 2008). Pande (2005) pointed out 5 broad classifications of proximate causes of ill health in urban slums. They were lack of adequate basic services; lack of information about proper state owned and managed medical benefits; mistreatment and bad behaviour; inadequate food intake and low levels of nutrition and lack of financial resources.

Yet another persistent problem in the slums has been the low utilization of health services. Social and cultural barriers are more common in slums where healthcare services are not reachable. Studies have highlighted the need for prioritizing accessibility to healthcare services of slum population in the district health planning process (Pahwa and Sood, 2013). Gupta and Guin (2015) held that urban slums were under-served by government facilities, with private providers and facilities scoring high on perceptions about quality.

Despite the presence of Government hospitals and other health care facilities in the urban areas, the slum dwellers have limited access to these facilities. Gupta and Mondal (2014) observed that the initiatives to address urban health concerns have been fragmented and limited in the country and also lack of proper implementation plans or evidence-based policies continued to be a main feature of urban health. But now the specific focus under the National Urban Health Mission (NUHM) has addressed this issue in the urban areas thereby envisaging improvement in the health status of the urban population in general, particularly the poor and other disadvantaged sections.

The establishment of the Urban Primary Health Centers has been the initial step to provide primary health care to the urban poor. Urban primary health care is actually centered around the principles of equity, responsiveness, efficiency and effectiveness. The functions of Urban Primary Health Centres are to provide comprehensive primary health care to the community and ensuring fulfilment of service guarantees and client satisfaction, provide integrated reproductive, maternal, newborn, child & adolescent (RMNCH+A) health services and other services under national health Programmes in accordance with protocols with required competency.

UPHCs are placed for every 50,000 - 60,000 population. There are no beds, as inpatient facility is not aimed to be provided; the location of UPHC ought to preferably be within a slum or near a slum within half a kilometer radius, catering to a slum population of approximately 25,000 – 30,000. OPD services are provided as prescribed under RCH II National Health Programmes Referral Services. Basic laboratory services are provided. Outreach Services is the responsibility of the ANM. Land & building for UPHC and other such infrastructure would be given free of cost by the State Government. However, often land/ rented building near slum & vulnerable inhabitation is not easily available. The option of co-locating the AYUSH Centre with U-PHC wherever possible is explored. The Manpower requirements include: Medical Officer – 1 I/C and 1 part time, 3 Staff Nurses, 1 LHV, 1 Pharmacist, 1 Lab Technician, 3-5 ANMs, 1 Public Health Manager and 3 Support Staff.

Among the major States in India, Kerala has always occupied a unique position in many development indicators. Urbanization in Kerala is not limited to the designated cities and towns. A surprising phenomenon has been the quantum jump in the urban population proportion of about 90 percent during 2001-11 in Kerala which is the largest for any state. The 14 districts were at different levels of urban growth. In 2011, Ernakulam district achieved the status of being the most urbanized district in Kerala (68 percent) pushing Kannur to 4th place (65.04 percent) after Thrissur (67.17 percent) and Kozhikode (67.15 percent). Increase of this magnitude has thrown open wider challenges to the health system in catering to the health care needs of the population. Wayanad remains the least urbanized district with the urban population percentage to total population hovering around just 4 percent during 1911 to 2011.

Lack of access to housing for the urban poor has led to proliferation of slums in Kerala too. Out of the 59 statutory towns reported in Kerala in 2011, 19 towns have reported existence of slums which means 32.2 percent of the towns in Kerala have slums. There are 45417 households and the total slum population is over 2 lakhs in the State. Health care access to this urban poor segment of the population has been a prioritized area for the health care sector in the State as they face challenges like rising incidence of Non Communicable Diseases, social exclusion, lack of information and assistance, ineffective outreach, lack of standards and norms for urban health care delivery system and very expensive private health care facilities. So following the Government of India's thrust on improving urban health during the 12th five-year plan, Kerala too embarked upon setting up of Urban Primary Health Centres under the National Urban Health Mission. Kerala established 83 UPHCs spread over 14 districts. Following the criteria of one UPHC for every 50000-60000 population, Ernakulam and Thiruvananthapuram districts have the highest number of UPHCs and Wayanad has the least number.

Patient satisfaction has long been considered an important component when measuring health outcomes and quality of care. Patient`s judgement or assessment is responsive to his/her personal needs, the level of care expected from the health facility and hence it is very subjective. Satisfaction is a personal choice based response. Services are rated based on their perception of care although they may not be aware of

the standards set by the Government. It has long been recognized that a satisfied patient tends to develop a bonding with the personnel and the institution which could enhance the utilization of services, continuity of care, and ultimately better health outcomes (Larsen, 1976; Ware et. Al., 1978; Fitzpatrick, 1991). Any improvement in services is often based on patient centered needs. UPHCs in Kerala have been functioning since 2014 and no attempt has been made to tap this very important aspect of patient satisfaction on services rendered by UPHCs in a macro scale. So here the study is designed to understand this very important aspect nd analyzes the utilization of services of UPHCs during 2016-19 in Kerala and to understand the patient satisfaction on services rendered.

Objectives

The main objectives of the study are:

- To understand the utilization of health care services of Urban Primary Health Centres in Kerala based on the quantum of services provided as evident from NUHM Official Records
- To assess the beneficiary satisfaction in health care services rendered by the UPHCs.

Materials and methods

To assess the population coverage and performance of UPHCs, the population of Corporations and Municipalities, where the UPHCs are located, are accounted here. The utilization of health care services of UPHCs is also assessed based on this population. The first set of data collected for the study pertain to those available from NUHM consisting of information on the performance of UPHCs as evident from the OPD attendance, NCD attendance, immunization details and the procedures done during 2016-19 period. Data at the district level is available and hence the district wise utilization is assessed.

Quantitative assessment of satisfaction levels is made through a second set of data collected from patients (beneficiaries) who visited the UPHC for seeking health care. One of the main health problems common to Kerala is the rising incidence of NCDs. The health system in the State has been quite active in responding to the needs of the urban population by fixing weekly one day for NCD screening. Some UPHCs have fixed days for NCD screening while others manage NCDs on all days along with OP. Satisfaction on different services like availability of lab services, x-ray facilities, availability of medicines, diagnostic facilities, location of UPHCs based on distance from the respondent's residence and last but not the least and the most important factor, the satisfaction on services rendered by the health provider are analyzed here. The quality of health care services provided by a health facility is thus reflected in the satisfaction of patients. So for capturing the beneficiary perspective, 120 to 130 patients per UPHC was fixed as the sample from each UPHC because overall daily OP in UPHCs varied between 50 and 130 during the period under study. Such an approach captured information from 10240 beneficiaries.

Multivariate logistic regression is used here to analyze the association of background variables of respondents with satisfaction on UPHC services as the dependent variable is dichotomous; low satisfaction is coded as '0' and high satisfaction as '1'. Only those variables that explain satisfaction levels significantly in bivariate association are included in the model. Here five domains namely satisfaction on human resources, diagnostic facilities or functioning of Lab, functioning of pharmacy, infrastructure and treatment services are analyzed separately as satisfaction levels tend to vary in each domain. The independent variables introduced in the multivariate regression model that are theoretically or empirically associated with satisfaction on service are location of UPHC (Urban - town/city limits), Coastal and Slum), frequency of visit to UPHC (weekly, monthly), distance of UPHC from home ($\leq$ 2km, $\geq$3 km), previous visit to any health facility during the year for treatment before survey (Yes, No). The background demographic and socio economic variables included in the model are age, sex, marital status, education (no formal schooling, 1-10 years of schooling, higher secondary and above), occupation (unemployed, Govt/Pvt/Retired/, part time unskilled job), income category (APL, BPL category) and number of aged members in the household (no aged, 1-2 aged, 3 or more aged). The results of the regression analysis as derived in the final model, after eliminating variables that do not predict satisfaction on services rendered by UPHCs, are presented.

Results

The first phase of NUHM in Kerala was implemented in February 2014 in five Corporations: Thiruvananthapuram, Kochi, Kollam, Thrissur and Kozhikode and 10 municipalities. Kerala established 83 UPHCs in the State spread all over its 14 districts by 2019 to cater to the needs of the urban population. Providing primary health care is the basic objective of the UPHCs in Kerala. Apart from this focus on primary health care, urban immunization has been given specific importance. Fixed-day immunization clinics in UPHCs, outreach camps, and follow-up to ensure that children complete the immunization schedule are envisaged through this effort. Changing health conditions have highlighted the need to screen migrant workers in urban locations. Another focus area has been adolescents' health in urban slums, where socioeconomic conditions fuel issues like gender violence, prejudice, and teen pregnancy. Ward health committees work closely with school teachers and counselors in urban areas.

Location of UPHCs

UPHCs provide services to the urban poor. However, the district Corporation or Municipality must provide the buildings. Out of the 83 UPHCs in Kerala, 24 percent are located in slum areas, 13.3 percent in coastal areas, while 62.7 percent are located within the town/city limits. In Thiruvananthapuram and Ernakulam districts, 80 percent of the UPHCs (12 each) are located in Corporations and 20 percent (3 each) in Municipalities. In Kozhikode district too this proportion is maintained. In Kannur district, only one UPHC is located in Corporation area and the remaining 4 are in Municipalities. Overall 45.8 percent of the UPHCs are located in Corporations in the State (38 out of 83). Ernakulam, the most urbanized district in the State has the highest

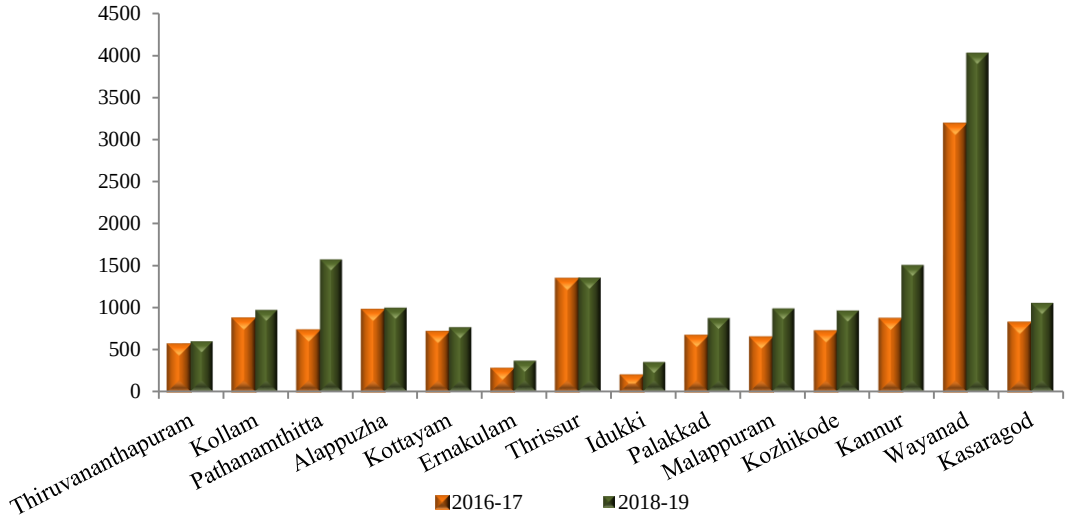
number of UPHCs in Kerala (15). Thiruvananthapuram, the capital district with 53.7 percent urban population too has an equal number of UPHCs. The most populated state of Malappuram has 12 and Kozhikode district having the same urban population proportion after Ernakulam district has 10 UPHCs. On the other hand, Thrissur district with the highest urban population proportion has only 4 UPHCs.

Utilization of health care services per 1000 population.

Information on total OP, new OP and old OP provides insight into service utilization. Since primary health care is the primary objective of UPHCs, minor ailments are treated here. The total OP which is indicative of the utilization level (Table 1) is over 1.6 million in the State in 2016-17 which is roughly 32 percent of the population (2011) of the Municipalities/Corporations where the UPHCs are placed (considering the limitation of the study in using Census 2011 population as base population). A definite upward trend in utilization is observed from the data available for the period 2018-19. The total OPD increased to 2.1 million in a couple of years. The utilization of UPHC services per 1000 urban population has increased from 319 to 410 per 1000 people from 2016-17 to 2018-19 based on the crude measure as all wards in an urban area are not covered by the UPHC.

The JPHNs at each UPHC are assigned wards where they provide health care. So assessment of the utilization rate based on the population of the ward under the JPHN, which would be a more refined measure, shows that utilization of UPHC services increased from 581 to 747 per 1000 population (assigned wards) from 2016-17 to 2018-19. This increase is attributed to the result of successful implementation of programmes. Here too a limitation in calculating such a measure would be that the old OP is also counted.

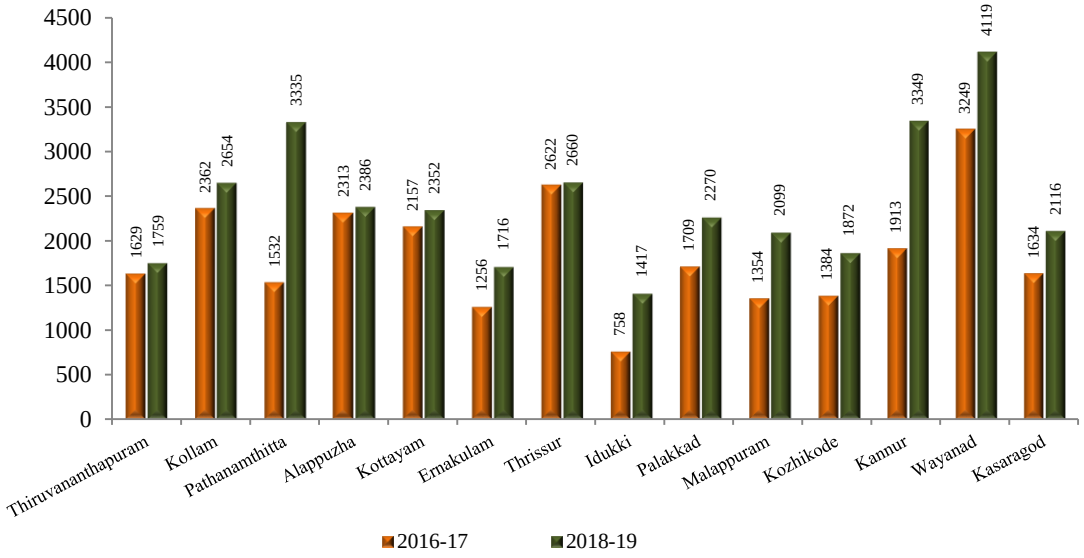
Figure 1: Utilization of UPHC Services per 1000 Ward population, Kerala



Wayanad district with the least urban population and which has one UPHC in its urban Municipality, named Kalpetta, has the highest utilization based on population size it caters to. During 2016-17, the utilization of health care services in Wayanad UPHC increased from 3176 to 4028 per 1000 population of the assigned wards between 2016-

17 and 2018-19. The UPHC in Pathanamthitta district also is well utilized by the population in the wards it caters to. In two years between 2016-17 and 2018-19, the utilization of services has doubled from 724 per 1000 population to 1576. Thrissur district too shows good performance as reflected by the total OP attendance. Percentage increase in utilization is observed to be highest in Pathanamthitta district (117.7 %) which is a remarkable progress. Kannur (75%), Malappuram (55%) and Idukki (42%) also show substantial increase in utilization over the period 2016-17 and 2018-19. On the other hand, the observed increase on utilization of only 1.4 percent in Thrissur district, 3.1 percent in Alappuzha district, 8 percent in Thiruvananthapuram district and 9 percent increase in Kottayam district require careful intervention. However, an assessment of average monthly 'Total OP' attendance per UPHC provides scope for better performance appraisal.

Figure 2: Monthly Average Total OP per UPHC, Kerala



The monthly average OP in Kerala when all 83 UPHCs are considered is 2118 during 2018-19 which is an increase from 1634 during 2016-17. Once again Wayanad district with only one UPHC tops the list of districts with higher monthly average OP per UPHC (Figure 2). In all districts, utilization during 2018-19 was better than in 2016-17, which demonstrates the success of various health programmes and State NUHM interventions. Pathanamthitta, Kannur and Thrissur districts show better performance whereas Idukki, Ernakulam and Thiruvananthapuram districts fair relatively poorer although the latter two districts have the maximum number of UPHCs in the State.

Table 1: Service Utilization of UPHCs based on Total OP during 2016-18 period, Kerala

Districts	**Urban Population***	**Population* served per UPHC**	**Population of wards under UPHC** ***	**Total OP****		**Service Utilization** *Per 1000* ***Urban population***		*Per 1000* ***Ward population***		**% increase**	**Monthly average Total OP per UPHC**	
				2016-17	**2018-19**	***2016-17***	*2018-19*	*2016-17*	*2018-19*		**2016-17**	**2018-19**
Thiruvananthapuram	919282	61285	526688	293203	316668	319	344	557	601	8.0	1629	1759
Kollam	392443	98111	131135	113362	127413	289	325	864	972	12.4	2362	2654
Pathanamthitta	37538	37538	25397	18381	40024	490	1066	724	1576	117.7	1532	3335
Alappuzha	309625	77406	114580	111042	114539	359	370	969	1000	3.1	2313	2386
Kottayam	103059	34353	110204	77663	84689	754	822	705	768	9.0	2157	2352
Ernakulam	792073	52805	839013	225996	308932	285	390	269	368	36.7	1256	1716
Thrissur	425672	106418	93991	125879	127681	296	300	1339	1358	1.4	2622	2660
Idukki	94691	47346	96727	18191	34010	192	359	188	352	87.0	758	1417
Palakkad	228280	45656	155043	102528	136186	449	597	661	878	32.8	1709	2270
Malappuram	651150	54263	304433	194984	302257	299	464	640	993	55.0	1354	2099
Kozhikode	697608	69761	232393	166067	224619	238	322	715	967	35.3	1384	1872
Kannur	284212	56842	132935	114779	200932	404	707	863	1512	75.1	1913	3349
Wayanad	31580	31580	12273	38983	49433	1234	1565	3176	4028	26.8	3249	4119
Kasaragod	179736	89868	48106	39212	50795	218	283	815	1056	29.5	1634	2116
KERALA	5146949		2822918	1640270	2109905	319	410	581	747	28.6	1647	2118

*Population (as per Census 2011) of Corporations and Municipalities where the UPHCs are placed divided by the number of UPHCs in the district.

** The population of wards assigned to JPHNs under each UPHC who receives UPHC service

The performance of districts with regard to new and old OP attendance is, as expected, same as indicated in the total OPD attendance.

Table 2: Services (New OP) provided in the UPHCs during 2016-18 period, Kerala

Districts	Service Utilization per 1000 ward population New OP**		% increase in utilization	Service Utilization per 1000 ward population - Old OP**		% increase in utilization
	2016-17	2018-19	New OP	2016-17	2018-19	Old OP
Thiruvananthapuram	367	350	-4.7	199	252	26.3
Kollam	522	508	-2.6	359	451	25.9
Pathanamthitta	436	980	124.7	288	596	107.2
Alappuzha	548	581	6.0	412	419	1.8
Kottayam	423	517	22.3	282	250	-11.5
Ernakulam	125	156	24.5	144	213	47.3
Thrissur	736	557	-24.3	753	953	26.6
Idukki	205	431	110.8	209	356	70.0
Palakkad	498	622	24.9	157	257	63.9
Malappuram	502	829	65.2	149	164	10.2
Kozhikode	428	625	46.1	284	340	19.8
Kannur	560	959	71.1	303	553	82.4
Wayanad	3050	3732	22.4	127	295	133.3
Kasaragod	664	904	36.0	150	144	-4.4
KERALA	374	475	27.0	223	290	30.1

** The population of wards assigned to JPHNs under each UPHC who receives UPHC service

The increase in utilization of UPHC services during 2018-19 over 2016-17 is evident from the average monthly new OPD attendance per UPHC which is double that of old OPD attendance in most of the districts. Three districts of Wayanad, Pathanamthitta and Thrissur show higher monthly average new OP per UPHC. The new OP attendance has made marked progress in Idukki district during the period under reference. In Thrissur district there has been proportionate decrease in new OP. Thiruvananthapuram, Kollam and Alappuzha districts register negative growth in new OP attendance, the reasons have to be assessed by UPHC wise inquiry.

One of the targets of the State Health Systems is management of NCDs in the State. Kerala has been in the forefront in prevalence of NCDs especially hypertension and diabetes. Survey findings show that Kerala reports prevalence of diabetes as high as 32.9 percent compared to the national average of 20.3 percent (NFHS 4, 2015-16). The survey reported more diabetes among men in urban regions than rural areas. Hypertension was higher among men (5.6 percent) than women (4.8 percent) in urban areas. According to the latest report of Kerala health services, one in three persons are becoming diabetic in Kerala and 33.39 percent of the total population of Kerala is diabetic. Every month around 87000 new cases are reported and women are equally at risk in Kerala (Kerala Health Services report, 2016). Ten years before this study a large multi-centre study involving almost 20,000 subjects had found the prevalence of diabetes in Thiruvananthapuram to be 17 percent (Mohan et al, 2006).

But the State has never fallen short of efforts in managing the emerging health challenges. UPHCs cater to this aspect by dedicating atleast one day for exclusive screening for NCDs. Huge turn out for NCD screening is evident from Table 3. Over 4

lakh persons in Kerala are screened for NCDs every year through the UPHCs. Since all the services are provided free of cost, urban poor utilize this service well.

Table 3: NCD Services provided in the UPHCs during 2016-18 period, Kerala

Districts	NCD**		Monthly average NCD attendance per UPHC		% increase in utilization NCD
	2016-17	2018-19	2016-17	2018-19	
Thiruvananthapuram	53578	71774	101.7	136.3	34.0
Kollam	30498	17976	150.1	137.1	-8.7
Pathanamthitta	996	17761	39.2	699.3	1683.2
Alappuzha	18107	22118	158.0	193.0	22.2
Kottayam	7870	16738	71.4	151.9	112.7
Ernakulam	45992	107802	54.8	128.5	134.4
Thrissur	28315	34685	334.9	410.3	22.5
Idukki	7160	9253	164.8	212.9	0.0
Palakkad	16835	20540	110.1	132.5	20.3
Malappuram	15590	25096	51.2	93.0	81.7
Kozhikode	27673	43194	119.1	185.9	56.1
Kannur	35466	15566	266.8	117.1	-56.1
Wayanad	3648	2325	297.2	189.4	-36.3
Kasaragod	7704	4153	160.1	86.3	-46.1
KERALA	299432	408981	104.7	149.3	42.0

*** The population of wards assigned to JPHNs under each UPHC who receives UPHC service*

Pathanamthitta district depicts lesser turn out for NCD screening during 2016-17 which calls for careful scrutiny of data as this district has the highest turn out during 2018-19 in terms of monthly average NCD attendance. Malappuram district also shows lesser turn out for NCD screening during both the time periods. Thrissur district shows fairly good utilization of NCD services. Urban population in Ernakulam are on top in the list of districts where NCD attendance is higher. Overall increased utilization of NCD services in UPHCs can be observed from 2016-17 to 2018-19.

Kerala has a long coastal line along the western part and hence 13 percent of the UPHCs are located in coastal areas. Fishing is the main occupation of the people in the coastal regions and we found that cuts and wounds caused during fishing are managed in these UPHCs to a great extent. Similarly, UPHCs located in the slums manages injuries and wounds caused due to violence among unruly mob. Scrutiny of records revealed that over 100 people have undergone wound management procedures on an average in every UPHC in the State during 2018-19.

Immunization service is rendered both at the UPHCs and in the wards assigned to the UPHCs catchment area by the Area Medical Officer or the Part Time MO who is responsible chiefly for rolling out the immunization activities at the field level. The JPHNs are assigned the responsibility of identifying children for immunization, organize camps for immunization and route these children to the UPHCs for immunization. We find that every month, on an average about 90 immunizations are carried out per UPHC in the State in Kerala. Thiruvananthapuram, Ernakulam, Pathanamthitta and Kollam fare better compared to other districts in this regard. Increase in immunization services in every UPHC in the district during the period 2018-19 compared to 2016-17 is a notable aspect. Respiratory problems are also managed as evident from nebulizations performed.

Beneficiary Satisfaction on services rendered at the UPHC: A Quantitative Assessment

Patients whose needs and demands are weighed during implementation of various programmes and hence functioning of UPHCs can be understood better in the beneficiary perspective. The State NUHM has been identifying areas so as to improve the quality of service rendered to the urban needy and poor sections that form a substantial proportion of the population. Table 4 describes the background details of the households of respondents included in the study. It includes variables that describe the socio economic background of the households. Since location of the UPHC in terms of distance from the households is a major factor in the utilization of services, an assessment in this perspective shows over four in five respondents who sought treatment at the UPHCs reside within one to two kilometers from the UPHC.

Table 4: Background Characteristics of Households of selected respondents

Characteristics		Percent	Characteristics		Percent
Distance of UPHC from Residence	<1km	0.4 (44)	**No. of Aged members in the Household**	No Aged	41.8 (4276)
	1-2km	83.3 (8529)		One	38.2 (3915)
	>=2km	16.3 (1667)		Two or more	20.0 (2045)
Income Category	APL	42.2 (4326)	**No. of children in the Household**	<=2	85.4 (8743)
	BPL	57.1 (5848)		3 or more	14.6 (1497)
	Don't know	0.6 (66)			
Household Size	<=2 members	13.0 (1333)	**No. of earning members in HH**	0	5.2 (532)
	3 -4 members	36.9 (3782)		1-2	87.3 (8940)
	>= 5 members	50.0 (5125)		>=2	7.5 (768)

Economic background is expressed by proportion of respondents belonging to APL or BPL category based on the ration cards the respondents possess. More than half of the respondents utilizing the UPHC services belong to BPL category and to in five belong to APL category which indicate that substantial proportion of the affluent group also utilize UPHC services. Half the respondents are from households with 5 or more members, 13 percent have only upto 2 members. Dependency on earning member is indicated by the number of elderly and children in the household. We found that 38 percent of the respondents have one aged members in their household, 85.4 percent of the respondents have upto 2 children in their household but 87.3 percent of the households have only one or two earning members.

The distribution of study population by background characteristics is analyzed in Table 5. Among those who utilize the UPHC services, over one in three are the aged population which is discernible from the higher turnout for NCD screening. An equivalent proportion is in their late adolescents when the onset of NCDs necessitates seeking primary health care.

Table 5: Percentage distribution of respondents by their background characteristics

Characteristics of respondents		Percent	Characteristics of respondents		Percent
Age of Respondent (in years)	0-14	15.1 (1544)	**Religion**	Hindu	51.9 (5316)
	15-29	10.9 (1117)		Muslim	30.5 (3125)
	30-39	10.0 (1024)		Christian	17.5 (1795)
	40-49	12.9 (1319)	**Education of Respondent**	No formal Schooling	12.6 (1288)
	50-59	18.3 (1878)		1-10 years	68.6 (7029)
	60+	32.8 (3358)		>10 years	18.8 (1923)
Gender of respondent	Male	37.2 (3809)	**Occupation of Respondent**	Unemployed	44.0 (4504)
	Female	62.8 (6431)		Govt/Pvt Job/Retired	7.8 (799)
Marital Status	Never Married	7.0 (714)		Unskilled workers	20.7 (2124)
	Currently Married	57.6 (5895)		Student	13.6 (1389)
	Divorced\Separated \Widowed	18.1 (1856)		Housewife	8.3 (847)
	NA*	17.3 (1775)		Children	5.6 (577)
Total No. of respondents		**10240**	**Total No. of respondents**		**10240**

** NA: Children are included in this category*

Representation of children and teenagers are relatively less. Gender wise differentials in health seeking behavior favours females as three in five coming to the UPHC are females. Currently married group form more than half of the respondents (57.6%). Religious wise distribution of the sample population is more or less similar to that of the State with Hindus forming just half of the respondents. When 30 percent of those who utilized UPHC service are Muslims, 17.5 percent are Christians. We find 12.7 percent without any formal schooling and this group are mostly the aged population. When 68.6 percent report 1-10 years of schooling, nearly one in five have more than 10 years of education inclusive of a good number of graduates and post graduates. As the UPHCs addresses the health care needs of the urban poor, we find that 44 percent of the respondents are unemployed. One in five health care seekers are unskilled workers.

Table 6 draws inference on the source of knowledge about the presence of an UPHC, the services provided and the level of utilization of services. Interpersonal communication or hearing about the services from other patients or relatives and friends is the major source of getting to know more about the UPHCs (98 percent) which indirectly indicates the fact that more people flow into the UPHCs mostly on their own and the health staff had to inform only 2 percent of the respondents on the presence of an UPHC in their locality. So the JPHNs and the media have a lesser role to play here.

Table 6: Awareness about UPHCs and Utilization of Services

Variables		Percent	Variables		Percent
Source of Knowledge about UPHC	JPHN	0.7 (75)	**Is this the first visit to UPHC**	Yes	6.0 (617)
	Media	1.2 (119)		No	94.0 (9623)
	Other Patients	61.0 (6242)	**Total**		**10240**
	Relatives/Friends	37.1 (3804)	**Frequency of Visit**	Weekly Once/ Twice	1.2 (108)
OP Timing Convenience	Yes	96.8 (9917)		Monthly Once	92.5 (8898)
	No	3.2 (323)		Monthly Twice	6.4 (616)
Total		**10240**	**Total**		**9623**

The designated OP timing of the UPHCs is 2 pm to 8 pm and 96.8 percent of the respondents feel the OP timing to be convenient. Based on the needs of the population, NUHM in the State has modified the OP timings especially in the coastal areas where the fisher folk return after fishing in the morning and such UPHCs function from 9 am-4 pm. Knowledge on the first visit and frequency is important in understanding the utilization of services. Only 6 percent of the beneficiaries were visiting the UPHC for the first time. Majority of the health care seekers are usual visitors and out of these 92.5 percent takes service from the UPHC monthly once. Around 6 percent report visiting twice in a month which according to the Pharmacist was for collecting NCD medicines which they give for every 15 days.

The primary objective of UPHC is rendering primary and promotive care and true to this aspect the illness for which treatment was sought is hypertension/diabetes/both (41.3 percent) reflecting the higher incidence of NCDs in the State. Table 7 draws inference on the distribution of respondents utilizing UPHC services by the type of illness for which they visited the UPHC during the time of survey. The very purpose of establishing UPHCs in urban area seems to have its effect in reducing the rush in District hospitals as we find that one in five respondents had taken primary care for minor ailments like fever (19%) or both fever and cough. The other illnesses for which treatment has been sought are body pain/stomach ache, ENT/Skin problems, asthma, wound dressing, heart ailments, thyroid and other ailments like neuro problems and arthritis etc.

We find that 30.5 percent of those who availed treatment presently at the UPHC has sought treatment elsewhere for the same illness. So a definite shift is discernible and with improvement in infrastructure this shift is expected to increase.

Table 7: Percentage distribution of respondents utilizing UPHC services by type of illness

Type of Illness	Percent
Fever	19.2 (1962)
Fever & Cough	18.5 (1893)
Heart ailments	1.3 (130)
Hypertension/ Diabetes/Both	41.3 (4226)
Asthma	3.1 (314)
Thyroid	0.9 (93)
Body/stomach Pain	6.7 (681)
Would dressing	2.5 (257)
ENT/Skin problems	4.6 (465)
Other ailments	2.2 (219)
Total	**10240**

Among those who had availed treatment elsewhere, we found that three in five patients had sought health care previously for the present illness in Government health facility and 36.2 percent considered UPHCs to be better than Private health facilities where they had higher expenditure for treatment (Table 8). Yet another interesting aspect is that three out of four patients decided to seek treatment from the UPHCs as they had encountered some problems in the previous health facility.

Table 8: Percentage distribution of respondents who had availed treatment elsewhere for the illness for which treatment is availed from UPHC

Availed treatment previously	Percentage	Type of problem**	Percentage
Yes	30.5 (3123)	Too much expenditure	8.7 (891)
No	69.5 (7117)	Long waiting time	9.5 (973)
Total	**10240**	Distant from home	4.6 (472)
Place of previous treatment		Illness not cured	3.0 (94)
Government health facility	61.3 (1913)	**Reason for availing treatment at UPHC****	
Private health facility	36.2 (1129)	Located near residence	26.9 (2752)
AYUSH	2.5 (79)	Convenient Timing	3.3 (340)
Total	**3123**	Others	1.1 (35)
Problems faced at previous place of treatment		No expenditure	6.1 (629)
Yes	72.4 (2261)	Not crowded	1.7 (176)
No	27.6 (862)	Better treatment	1.5 (151)
Total	**3123**	Other reasons	0.7 (72)
		Total	**3123**

** Multiple responses

Long waiting time compelled nearly ten percent of the patients to leave the previous treatment place and approach the UPHC, 8.7 percent report higher expenditure to be the reason, 4.6 percent found the nearness of UPHC from residence to be advantageous and 3 percent were unable to get proper cure for their present illness from the previous place of treatment. The positive aspects that they found with the UPHCs in seeking care when compared to the previous place of treatment was the location of the UPHCs near their residence, no expenditure, convenient timing, lesser crowd and better treatment in the UPHCs.

Satisfaction on Human Resources

UPHCs in Kerala are located in coastal, slum or urban area within the town or city. Analyzing the satisfaction of services based on such a classification provides ample scope for further demand based development of the UPHCs. Beneficiaries have rated their satisfaction on human resources available on a three-point scale. Satisfaction is high on Medical Officer's service among 92 to 95 percent of the beneficiaries in UPHCs irrespective of location. However, district wise assessment revealed satisfaction on service of MO to be is lesser because of the lack of regularity in availability of MOs in certain UPHCs. Examples of such lesser 'high' satisfaction ratings are visible in Cheravally UPHC of Alappuzha district, South Panamana UPHC of Palakkad district.

Satisfaction on services of Staff Nurses too are relatively better hovering around 85 percent in UPHCs located in coastal and slum areas but slightly higher in those located in urban residential areas. There is some amount of displeasure among the patients on satisfaction of services as one in ten beneficiaries rated the satisfaction levels as moderate.

Table 9: Satisfaction with services rendered by Staff in UPHC

Location of UPHCs	Satisfaction Rating	Satisfaction on services of				
		Medical Officer	Staff Nurse	Pharmacist	Lab Technician	JPHN
Urban	High	94.7	88.0	89.1	81.1	59.3
	Moderate	4.8	11.9	10.7	14.8	16.4
	Low	0.5	0	0.1	4.1	24.4
Coastal	High	92.3	85.9	87.2	79.2	43.0
	Moderate	7.7	14.0	12.7	19.0	16.6
	Low	0	0.1	0.1	1.8	40.4
Slum	High	93.5	84.6	85.1	77.1	56.6
	Moderate	6.4	15.3	14.6	17.9	17.1
	Low	0.1	0.1	0.3	4.9	26.2
Kerala	High	94.1	86.9	87.9	79.8	56.6
	Moderate	5.5	13.0	11.9	16.1	16.6
	Low	0.3	0	0.2	4.0	26.8

Similar differentials are observed in 'high' satisfaction rating on service of Pharmacists. Beneficiary satisfaction on the service of Lab Technician and JPHNs also show significant differentials by location of UPHCs as some of the UPHCs did not have Lab Technicians during the period of survey. In those UPHCs where there is no regular Lab Technician and lack of regularity in posting the 'high' rating assigned on satisfaction of their service has been much lower as found in UPHCs located in slums and to an extent those in coastal and urban city/town limits. Pathanamthitta, Palakkad, Alappuzha and Thrissur districts are some of the districts where this problem has been noted. Similarly JPHNs home visits are not regular in UPHC areas which is reflected in the satisfaction ratings as only half the beneficiaries assign 'high' rating in all UPHCs in general. Beneficiaries in UPHC in Pathanamthitta, some in Alappuzha, Kollam and Malappuram districts had issues with Lab Technicians and also had problems with field work of JPHNs.

Satisfaction with Diagnostic services of the UPHC

Beneficiary satisfaction on diagnostic services based on availability of lab testing facilities is found to be lower among UPHCs located in coastal areas. Four out of five beneficiaries have given 'high' rating to the availability of lab tests in UPHCs. One in three beneficiaries gave moderate rating conveying some amount of displeasure mostly because all tests required were not available in the labs.

A few examples where ratings are low are UPHC Rajaji Nagar in Thiruvananthapuram district which does not have a lab and in UPHC Chalai where the lab remained non functional during the survey period due to absence of Lab Technician. In Pathanamthitta UPHC, all the UPHCs in Alappuzha, and in Palakkad district more beneficiaries have rated availability of lab tests as 'moderate' and in UPHCs of Wayanad, Thrissur and Malappuram districts 20 to 40 percent of the patients report 'moderate' satisfaction levels on availability of lab tests. In general, beneficiary rating are moderate in those UPHCs where the lab testing facilities have been disrupted due to absence of lab technician or where the lab functions in congested settings owing to

rented status of buildings as seen in Malappuram district and in UPHC South Panamana, Palakkad where lab is presently non-functional. More blood tests are mandatory and the lab timings need to be suitable to the patients for availing services. In most of the UPHCs lab functions from 9am to 4 pm. Patients requiring fasting blood sugar tests and post prandial blood sugar tests find difficulty in adjusting to this timing which is reflected in their satisfaction levels.

Table 10: Satisfaction with Diagnostic services and functioning of Pharmacy

Location of UPHCs	Satisfaction Rating	Availability of Lab Tests	Functioning of Lab	Availability of Medicines	Functioning of Pharmacy
Urban	High	73.9	85.7	79.8	89.6
	Moderate	20.0	11.2	19.5	9.7
	Low	6.1	3.1	0.7	0.6
Coastal	High	61.5	80.3	77.3	84.0
	Moderate	34.5	18.0	21.5	15.4
	Low	4.0	1.7	1.2	0.5
Slum	High	75.2	80.1	79.3	84.8
	Moderate	19.5	18.2	19.5	14.4
	Low	5.2	1.7	1.2	0.8
Kerala	High	72.7	83.5	79.4	87.7
	Moderate	21.7	13.9	19.8	11.6
	Low	5.6	2.5	0.9	0.7
χ^2		*.000*	*.000*	*.063*	*.000*

Satisfaction with functioning of Pharmacy

Availability of all medicines is yet another criterion in rating satisfaction on functioning of UPHCs. Pharmacy timing too needs to be suitable to the patients. Here we assess two aspects first one being availability of medicines and the second being timing and overall functioning of Pharmacy. Table 10 also draws inference on the satisfaction of beneficiaries on the functioning of Pharmacy. Almost four in five beneficiaries in UPHCs located in Urban town/city limits, coastal and slum areas have assigned high satisfaction on availability of medicines. Some amount of dissatisfaction on availability of medicines has made the rest of the patients to assign 'moderate' satisfaction level because most of the UPHCs here have high NCD attendance and shortage of NCD drugs is reported during certain times. But with regard to the functional timing of the UPHCs, more than 80 percent of the beneficiaries have high satisfaction on the functioning of the Pharmacy. If the district wise picture is analyzed, we found that in UPHCs of Alappuzha, Pathanamthitta, Thrissur and Palakkad, around 40 percent of the patients assigned only 'moderate' rating on the functioning of the Pharmacy. To adjust the timings of the Pharmacist, the SNs manage the medicine distribution in the morning before the duty time of the Pharmacist.

Satisfaction with Services: NCD screening and Immunization

The UPHCs have fixed days for immunization to increase the coverage of immunization. JPHNs of each ward keeps record of the number of children to be immunized and during their field visits ensures that there are no dropouts. UPHCs started off with fixed day NCD screening but we found that many UPHCs had witnessed high turnout on these days and had to provide screening on more than one day with the OP. Satisfaction on NCD services is also either 'high' or 'moderate'.

Table 11: Satisfaction with Services: Immunization and NCD screening

Location of UPHCs	Satisfaction Rating	NCD Screening	Immunization	Effectiveness of treatment
Urban	High	88.0	86.0	89.4
	Moderate	11.2	11.8	9.7
	Low	0.8	2.2	0.8
Coastal	High	87.8	75.4	89.3
	Moderate	11.5	15.9	9.9
	Low	0.7	8.7	0.8
Slum	High	89.2	88.2	85.3
	Moderate	10.2	10.6	14.1
	Low	0.6	1.2	0.6
Kerala	High	88.3	85.4	88.4
	Moderate	11.0	11.9	10.8
	Low	0.7	2.7	0.8
χ^2		*.662*	*.000*	*.000*

Almost all the beneficiaries in UPHCs at Kozhikode, Kottayam Kasaragod and Thiruvananthapuram are highly satisfied with the NCD services. In those UPHCs where beneficiaries have rated NCD services as 'moderate', non availability of medicines continuously on demand, timing of lab tests which necessitates long waiting time and disrupted lab services has been cited to be the reasons.

Satisfaction on immunization services in all the districts speak of the acceptance of the immunization programme. 'High' satisfaction rating has been recorded in almost all the districts except Wayanad district. GH Kalpetta is very near this UPHC and all the immunization cases are managed at the GH. Data reporting is also from the GH

Satisfaction on Infrastructure Facilities

Availability of infrastructure facilities determines satisfaction levels of patients to a great extent. Since UPHCs are allotted buildings from the Corporation or Municipality there is seldom any other option other than utilize what is granted. Nearly one in ten UPHCs in the State are still functional in rented buildings and face severe infrastructural limitations. Here this aspect is the subject of inquiry (Table 12).

Only 40 to 50 percent of the beneficiaries have assigned 'high' rating on satisfaction on availability of space in UPHCs located either in Urban city/town limits or coastal or slum areas. When availability of space is analyzed, one has to keep in mind that space constraints and satisfaction levels must consider two categories: first arising due to heavy OPD rush and second due to real limitations in space under poor

infrastructure support. The examples of the first category are the UPHC in Wayanad, Pathanamthitta, Kannur, Kollam etc where the total OPD averages to more than 3000 a month when patients tend to rate their satisfaction on availability of space more under 'moderate' rating. The other category would include UPHCs that either function in rented buildings at the mercy of the landlords with no infrastructural development possible and also those Municipality buildings with structural limitations. In this category UPHCs in Malappuram, Thrissur etc would be assigned lesser proportions of 'high' satisfaction of space availability. Thus beneficiary satisfaction on availability of space is 'high' only among half the respondents when all the UPHCs are put together in Kerala.

Table 12: Satisfaction on Infrastructure Facilities

Location of UPHCs	Satisfaction Rating	Availability of Space	Cleanliness
Urban	High	50.4	85.2
	Moderate	35.1	14.2
	Low	14.5	0.6
Coastal	High	40.1	83.3
	Moderate	41.7	15.6
	Low	18.2	1.1
Slum	High	58.1	85.2
	Moderate	24.1	14.2
	Low	17.8	0.6
Kerala	High	50.9	84.9
	Moderate	33.3	14.4
	Low	15.8	0.6
χ^2		*.000*	*.209*

Cleanliness is a much needed aspects in UPHCs. Patient satisfaction on cleanliness is high in almost all UPHCs classified by location. During field survey, some of the UPHCs like that in Pathanamthitta, some at Kollam, Palakkad, Alappuzha, and Thiruvananthapuram were observed to be poorly maintained. Water logging and poor roads in front of the UPHC like that in UPHC Chalai in Thiruvananthapuram, those that are located in coastal areas like that in UPHC Vaadi in Kollam, poor maintenance issues in the buildings etc keep the satisfaction levels moderate among patients. Now with regard to distance, which is a major factor affecting utilization, one in five respondents expressed moderate satisfaction, as they travelled from a distant ward to avail service at the UPHC. Such opinion came from UPHCs where ward redistribution is necessary.

Here we find that 73 percent of the patients have expressed their satisfaction as 'high' on OPD waiting time in UPHCs located in slums. In coastal and other urban UPHCs it is 64 percent and 68.6 percent respectively. More beneficiaries have moderate satisfaction in UPHCs where OPD attendance is pretty high as evident from Munderi UPHC in Wayanad, Pathanamthitta, Palakkad, and Thrissur to be more specific.

Table 13: Satisfaction with location of UPHC, OPD waiting time and community level activities

Districts	Satisfaction Rating	UPHC Location-Accessibility	OPD Waiting time	Community level activities	Outreach activity of JPHN
Urban	High	78.3	68.6	45.8	45.9
	Moderate	16.8	29.2	33.5	21.0
	Low	4.9	2.2	20.7	33.1
Coastal	High	76.2	63.9	43.7	49.4
	Moderate	21.3	32.2	34.4	17.8
	Low	2.5	3.9	21.9	32.8
Slum	High	73.4	72.8	48.0	53.8
	Moderate	20.0	25.4	28.6	18.5
	Low	6.5	1.8	23.4	27.6
Kerala	High	76.9	69.0	46.1	47.9
	Moderate	18.2	28.7	32.5	20.2
	Low	5.0	2.3	21.4	32.0
χ^2		*.000*	*.000*	*.043*	*.000*

But the rating on community level activities needs attention. Only 46 to 53 percent of the beneficiaries have rated heir satisfaction levels as 'high'. In general, satisfaction is lesser in UPHCs in coastal areas with regard to community activities. This indicates that although various programmes are being organized many are not participating and those involved do not understand the purpose of the programmes. This opinion could be addressed by improved coverage through increased field activities of JPHNs. An important aspect to achieve this would be the involvement of LHIs which is presently absent in field work.

The final model depicting the correlates of respondents rating high satisfaction levels on UPHCs services reveal location of UPHCs in urban (Town/City), shorter distance of UPHC from home, those who had previously visited any health facility for treatment before seeking treatment at UPHC, those who frequently visit the UPHC for treatment to be the predictors. Among the background demographic and socio-economic variables, age, income category, education, occupation and number of aged members in the household emerge as significant predictors. But significant predictor variables vary with regard to the five domains: human resources, diagnostic facilities, functioning of pharmacy, infrastructure and treatment services considered here.

Location of UPHC is observed to be a significant predictor of Satisfaction on UPHC services as the beneficiaries in UPHCs located in urban area (within town/city) are more likely to have 'high' satisfaction on human resources available, diagnostic services and on functioning of pharmacy. But with regard to infrastructure, beneficiaries in UPHCs located in urban and coastal area are at lesser odds of rating their satisfaction level as 'high' than those beneficiaries in UPHCs located in slums.

Satisfaction on treatment services is low in urban and coastal UPHCs compared to those located in slums. Beneficiaries in coastal UPHCs are at lesser odds of assigning

'high' satisfaction on diagnostic facilities, functioning of pharmacy, infrastructure and treatment services compared to those in UPHCs located in slums. Satisfaction on treatment services is low in urban and coastal UPHCs compared to those located in slums.

Respondents living at shorter distance from the UPHCs are significantly at greater odds of assigning high satisfaction on availability of staff, diagnostic/lab facilities, functioning of pharmacy and treatment services. But the odds is less on satisfaction of infrastructure. Those who have chosen the UPHC services over any other Govt/Private health facility for treatment before coming to the UPHC are significantly at higher likelihood of having better satisfaction. Also those who do not visit the UPHC frequently (monthly once compared to weekly visit) are lesser likely to assign high satisfaction on the various domains under study.

The likelihood of aged respondents rating high satisfaction on the diagnostic facilities and functioning of pharmacy is 25 percent more likely than the children as they use the services more. Sex of respondent has weak association on satisfaction levels. But those respondents who fall under the BPL income category are significantly at better odds of rating high satisfaction levels on staff availability, diagnostic and functioning of pharmacy than the beneficiaries from APL category. As regards occupation, the respondents who have a constant source of income or who hold part time jobs seem to maintain more expectation on services from UPHC than unemployed respondents.

Education is highlighted to be strong predictor of satisfaction on health care services. Here too respondents with formal schooling and higher education levels are at lesser odds of giving high satisfaction rating on the UPHC services, infrastructure and availability of human resources than those who do not have formal schooling. Also as dependency increases in the form of more elderly members in the household, resources tend to be strained as expectation on free and good quality services from UPHC also tend to be more. So there is lesser likelihood of having high satisfaction levels on UPHC services.

It is actually the urban poor, lesser educated, unemployed who seek treatment services in the UPHC and hence the result. Location of UPHC is observed to be a significant predictor of satisfaction on UPHC services as the beneficiaries in UPHCs located in urban area (within town/city) are more likely to have 'high' satisfaction on human resources available, diagnostic services and on functioning of pharmacy. But with regard to infrastructure beneficiaries in UPHCs located in urban and coastal area are at lesser odds of rating their satisfaction level as 'high' than those beneficiaries in UPHCs located in slums.

Table 14: Results of Multivariate Logistic Regression Analysis showing the correlates of satisfaction on UPHC services

Variables	Satisfaction on				
	Human Resources	Diagnostics (Lab)	Functioning of Pharmacy	Infrastructure	Treatment services
	Odds Ratio (CI)	*Odds Ratio (CI)*	*Odds Ratio (CI)*	*Odds Ratio (CI)*	*Odds Ratio (CI)*
Location of UPHC *(Ref: Slum)*					
Urban(Town/city)	1.458*** (1.290,1.648)	1.155** (1.025,1.301)	1.181*** (1.063,1.311)	.879** (.792,.976)	.992 (.869,1.132)
Coastal	1.059 (.893,1.257)	.604*** (.512,.712)	.853** (.738,.986)	.699*** (.605,.806)	.553*** (.458,.667)
Distance of UPHC from home *(Ref: ≥ 3km)*					
≤2 km	1.520*** (1.322,1.746)	1.287*** (1.114,1.486)	1.457*** (1.296,1.639)	.880** (.779,.993)	1.285*** (1.088,1.518)
Previous visit to any Health facility *(Ref: No)*					
Yes	1.627*** (1.438,1.841)	1.499*** (1.338,1.679)	1.492*** (1.353,1.646)	1.384*** (1.259,1.522)	1.894*** (1.657,2.164)
Frequency of visit to UPHC for services *(Ref: Weekly once or twice)*					
Monthly once	.428** (.215,.852)	--	--	.610** (.390,.953)	1.576* (.889,2.791)
Age of respondent *(Ref: 0-14 years)*					
15-59 years	.809** (.679,.964)	1.028 (.852,1.241)	1.263*** (1.085,1.471)	.985 (.858,1.130)	--
60+ years	.740*** (.610,.897)	1.256* (1.031,1.531)	1.254*** (1.070,1.471)	.859** (.739,1.000)	--
Sex of respondent *(Ref: Female)*					
Male	--	--	--	1.133** (1.026,1.252)	--
Income category *(Ref: APL)*					
BPL	1.114** (.999,1.241)	1.115** (1.004,1.239)	1.140*** (1.043,1.247)	--	--
Education of respondent *(Ref: No formal schooling)*					
1-10 years of schooling	--	.863* (.720,1.034)	.920 (.792,1.068)	--	.881* (.732,1.060)
Higher secondary and above	--	1.066 (.848,1.339)	.770*** (.636,.933)	--	1.063 (.850,1.330)
Occupation of respondent *(Ref: Unemployed)*					
Govt./Pvt./Retired	.888 (.736,1.072)	--	.999 (.851,1.172)	.867* (.739,1.016)	--
Part time unskilled job	.828*** (.721,.950)	--	.904* (.803,1.018)	.972 (.858,1.103)	--
No. of Aged members in the household *(Ref: No aged)*					
1-2 aged	.854* (.747,.976)	.832*** (.729,.948)	.981 (.880,1.093)	.885** (.795,.985)	--
3 or more aged	.966 (.809,1.153)	.879 (.741,1.041)	1.125* (.973,1.302)	.940 (.816,1.083)	--
N	*9498*	*6898*	*9600*	*9597*	*6013*
-2 log likelihood	*8766.96*	*8553.55*	*11786.02*	*12187.56*	*6933.94*

Reference category of the predictor variables are given in brackets
*Significance Level is depicted as ***p<.001, **p<.05, *p<.01*

Overall Satisfaction on Services

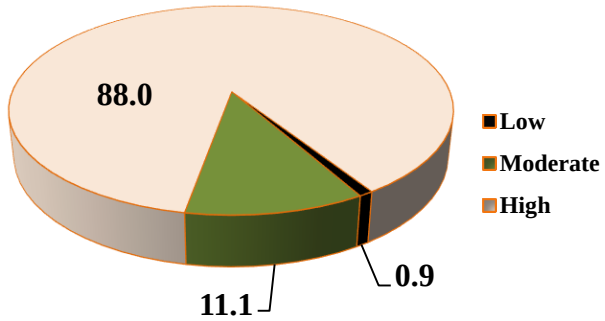
Overall the performance of UPHCs are reflected in the satisfaction level of patients in all the districts. UPHC services are being utilized by a large population. Urban poor are greatly benefitting from the UPHC services and even a suggestion at some places to shift the UPHC had made the mob violent.

Table 15: Overall Satisfaction on services rendered by UPHCs in Kerala

Location of UPHCs	Satisfaction Rating	Overall Satisfaction
Urban	High	89.2
	Moderate	10.3
	Low	0.5
Coastal	High	89.9
	Moderate	9.7
	Low	0.4
Slum	High	84.2
	Moderate	13.7
	Low	2.2
Kerala	High	88.0
	Moderate	11.1
	Low	0.9
χ^2 Value		*.000*

Now the overall satisfaction levels indicate the level of satisfaction considering all the domains under study. The low values indicate that they are not satisfied with many aspects. 'Moderate rating indicated that the beneficiaries are dissatisfied with atleast a few services. Satisfaction thus classified shows that 88 percent of the beneficiaries have 'high' overall satisfaction, 11 percent rated 'moderate' satisfaction and less than one percent assigned 'low' satisfaction.

Figure 3: Overall Satisfaction Index on services rendered by UPHCs, 2019



Now among those who have expressed their dissatisfaction we examined the beneficiaries' opinion on what more they expected from an UPHC or what improvements in services they expected because of which they expressed their dissatisfaction in all the three districts.

Overall two in five patients voiced their need for service of Specialists in the UPHC which shows the acceptance of the services delivered by the UPHC. One in four patients express the need for more space in the UPHCs as they find difficulty in waiting for treatment services especially on NCD Screening days, Immunization days and Specialty OP days.

Table 16: Percentage distribution of respondents by service expected from UPHCs

Suggestions for better performance of UPHC	Percentage
Require more space	25.0 (2559)
Organize more outreach programmes	2.3 (233)
Organize more Awareness classes	28.5 (2919)
Provide all prescribed medicines	5.4 (552)
Improved Lab testing facilities	7.4 (761)
Provide Thyroid testing facility	8.9 (909)
Need ECG facility	7.3 (749)
Change in OP timing	4.9 (502)
Make UPHC service round the clock	3.5 (362)
Require Inpatient facility	16.0 (1636)
Need Family Planning service	2.9 (298)
Arrange facility for minor suturing	2.7 (272)
Need IVF facility	1.6 (160)
Need service of Specialists	44.0 (4388)
Provide drinking water facility	2.1 (215)

The need for more awareness classes under community outreach programmes was voiced by 28.5 percent of the beneficiaries, 7.4 percent of the respondents suggested the need for a functional lab in the UPHCs where it is presently either non functional or lacks a lab technician. The other suggestions for improvement in UPHC services by a small proportion of respondents were supply of all medicines from UPHC, inpatient facility, requirement of family planning services, need thyroid testing facility, demand for ECG facility, need for IVF facility, drinking water facility, minor suturing facility and round the clock service.

Discussion

Kerala is a rapidly urbanizing State. Urban health problems are also plenty. The primary health care needs of the urban poor are catered to a good extent by UPHCs established in the Corporations and Municipalities. But a comparison of distribution of UPHCs and slum population point to need for more UPHCs in districts like Thrissur which has the maximum slum population but with only 4 UPHCs presently. Slum population also have poor living conditions.

The study findings point out to the greater utilization of services in the UPHCs irrespective of the location of UPHC in the slum or coastal or urban (town/city limits) areas which indicate the demand for health care services among the urban poor. But greater focus needs to be on the slum population and also the coastal population who have similar poor living conditions, so that they get primary health care as delivered by the UPHCs. Most of the UPHC services are being utilized thereby reducing the load of the SDH and DH in the State in meeting the primary health care needs of the urban poor. There is a marked improvement in utilization levels in Kerala, the result of successful implementation of programmes. One observation that shows the commitment of NUHM and the State is the infrastructure development in most of the UPHCs as part of Kayakalp drive and NQAS Certification. But problems of sixteen

UPHCs functioning in rented buildings have to be addressed. Half the number of UPHCs in Malappuram district occupies rented buildings.

Quantitative assessment formed an important source of information on the question 'Who are the people approaching the UPHCs for health care?' Over one in three who utilize the UPHC services are the aged population which is discernible from the higher turnout for NCD screening. An equivalent proportion is in their late adolescents when the onset of NCDs necessitates seeking primary health care. The very purpose of establishing UPHCs in urban area seems to have its effect in reducing the rush in District hospitals as we find that one in five respondents had taken primary care for minor ailments. Among those who had availed treatment elsewhere, 36.2 percent considered UPHCs to be better that Private health facilities where they had higher expenditure for treatment.

Absence of wide differentials in utilization of services by location is an important feature. One observation that needs attention is that in the districts where the satisfaction on service of MO is lesser, the regularity in availability of MOs in certain UPHCs has been disturbed which were expressed in the form of lower satisfaction levels. In those UPHCs where there is no regular Lab Technician and lack of regularity the 'high' rating assigned on satisfaction of their service has been much lower. Similarly JPHNs home visits are not regular in UPHC areas as observed from patient satisfaction rating in Pathanamthitta, Alappuzha, Kollam and Malappuram districts. Beneficiary satisfaction on infrastructure is lower when compared to availability of human resources. Distance is a major factor affecting utilization which point to the need for ward redistribution.

Overall the performance of UPHCs are reflected in the satisfaction level of patients in all the 14 districts. The multivariate regression analysis depicting the correlates of respondents rating high satisfaction levels on UPHCs services reveal location of UPHCs in urban (Town/City), shorter distance of UPHC from home, those who had previously visited any health facility for treatment before seeking treatment at UPHC, those who frequently visit the UPHC for treatment to be the significant predictors.

So the study findings portray the good utilization of UPHCs in Kerala. There is demand for services. Elderly population heavily depend on these centres to avoid long queues in the referral hospitals or the higher costs in the private sector. More stress on extending pediatric care could perhaps attract treatment of children at these centres. Medicine distribution for NCDs are on great demand and supplies need to balance the demand. UPHCs in Ernakulam district set an example with additional facilities like ECG, Palliative care and Mental health care which raised the satisfaction levels of beneficiaries compared to the other districts under study. Such facilities could be extended to all UPHCs.

Every successful health programme is the result of commitment of the health care providers. Their demands for better remuneration and better facilities need

attention. On the beneficiary side, the higher expenditure incurred for treatment in the private sector often tempts the urban poor to utilize the UPHC services. So facility level preparedness is a key aspect and has to be carefully demand oriented. We found great demand for services especially among the aged urban poor who mostly struggle to manage their health problems. Indepth analysis reveals that the background demographic factors have very little influence on satisfaction but the factors that really matter are access in terms of nearness to residence, free services which increase frequency of visit and also point out that it is virtually out of greater dependency burden on families and poor economic conditions that the poor are attracted to avail the free services that the UPHCs render. So the purpose for which UPHCs are established are truly accomplished in the State. Yet the shortfalls need to be addressed for further improving the utilization of UPHC services.

Acknowledgements

The Authors sincerely acknowledge the support rendered by Shri Kesavendra Kumar IAS, State Mission Director, Arogyakeralam for funding the project on 'Utilization of health care services of Urban Primary Health Centres in Kerala'. Population Research centre Kerala carried out the project during the period 2017-19. Our sincere gratitude goes to Dr. George K Philip, State M&E Consultant, Ms. Buela G.S, Urban MIS Manager, NUHM, Kerala, NUHM Coordinators and staff of all UPHCs for providing all necessary information and facilitating data capture from the selected UPHCs. The cooperation rendered by the State Health Department is gratefully acknowledged. The present study is a part and modified version of the study findings.

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